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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,048	01/09/2006	David L. Foxall	PHUS030233US	7214

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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CLEVELAND, OH 44143

EXAMINER

VARGAS, DIXOMARA

ART UNIT PAPER NUMBER

2859

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/564,048

Applicant(s)

FOXALL ET AL.

Examiner

Dixomara Vargas

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-10 and 16-23 is/are rejected.
- 7) ☒ Claim(s) 7, 11-15 and 24 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/09/06</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6, 8-10 and 16-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Schneider (US 5,617,029 A).

With respect to claims 1, 8-10, 17 and 21-23, Schneider discloses a method of shimming a magnetic imaging scanner the method including: performing at least one of fat suppression and moving blood suppression to suppress magnetic resonance from at least one region of fat and moving blood; measuring first and second magnetic resonance echoes emanating from a generally columnar volume (Column 4, lines 45-60); reconstructing the measurements of the first and second magnetic resonance echoes into corresponding first and second generally projection images; combining the first and second generally columnar projection images to produce a magnetic field profile of the generally columnar volume (Column 5, lines 2-44); extracting selected magnetic field parameters from the magnetic field profile; computing shim currents from the selected magnetic field parameters; and applying the shim currents to magnetic field coils (Column 2, lines 54-67).

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3. With respect to claim 2, Schneider discloses a method of shimming a magnetic imaging scanner wherein the first and second magnetic resonance echoes include a spin echo and a field echo (Column 3, lines 20-41).

4. With respect to claims 3 and 18, Schneider discloses a method of shimming a magnetic imaging scanner further including: interposing a delay corresponding to a multiple of a fat-water period between the measuring of the first magnetic resonance echo and the measuring of the second magnetic resonance echo (Column 4, lines 45-60).

5. With respect to claims 4 and 19, Schneider discloses a method of shimming a magnetic imaging scanner wherein the measuring of first and second magnetic resonance echoes employs a symmetric echo sequence in which echoes are spaced by a selected time interval (Column 4, lines 45-60).

6. With respect to claims 5, 18 and 20, Schneider discloses a method of shimming a magnetic imaging scanner wherein the combining of the first and second generally columnar projection images to produce a magnetic field profile includes: computing a phase difference between the first and second generally columnar projection images to produce a phase-wrapped magnetic field profile; and phase unwrapping the phase-wrapped magnetic field profile (Column 5, lines 2-44).

7. With respect to claims 6 and 20, Schneider discloses a method of shimming a magnetic imaging scanner further including: identifying at least one usable region that is bounded by unusable region that is bounded by unusable regions of low magnetic resonance signal; and phase unwrapping the at least one usable region (Column 5, lines 15-44).

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8. With respect to claim 16, Schneider discloses a method of shimming a magnetic imaging scanner wherein the measuring of first and second magnetic resonance echoes emanating from a generally columnar volumes includes: selecting the generally columnar volume using two transverse slice-selective pulses (Figure 1).

Allowable Subject Matter

9. Claims 7, 11-15 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

a. With respect to claim 7, the claim has been found allowable over the prior art of record, because the prior art of record fails to teach or fairly suggest wherein the identifying of at least one usable region that is bounded by regions of low magnetic resonance signal includes: computing a mean of the phase-wrapped magnetic field profile; and identifying a region boundaries corresponding to mean crossings in combination with the remaining limitations of claims 1, 5 and 6 above.

b. With respect to claim 11, the claim has been found allowable over the prior art of record, because the prior art of record fails to teach or fairly suggest wherein the plurality of spatial orientations include at least five spatial orientations, and the extracting selected magnetic field parameters for each spatial orientation includes: performing a high-order polynomial fit of order greater than or equal to two of the magnetic field profile to obtain

second or higher order magnetic field terms in combination with the remaining limitations of claims 1 and 10 above.

c. With respect to claims 12 and 13, the claim has been found allowable due to its dependency on claim 11 above.

d. With respect to claim 14, the claim has been found allowable over the prior art of record, because the prior art of record fails to teach or fairly suggest wherein the plurality of spatial orientations includes $2N+1$ spatial orientations where N is a highest order shimming correction of the selected magnetic field parameters to be performed, the spherical θ coordinate is computed as (EQN. 1) and the spherical ϕ coordinate is computed as (EQN. 2) where N_θ is a number of θ coordinate values, N_ϕ is a number of ϕ coordinate values, the product $N_\theta * N_\phi$ is a number of spatial orientations to be measured, and $N_\phi \geq 2N+1$ in combination with the remaining limitations of claims 1 and 10 above.

e. With respect to claim 15, the claim has been found allowable due to its dependency on claim 14 above.

f. With respect to claim 24, the claim has been found allowable over the prior art of record, because the prior art of record fails to teach or fairly suggest wherein the selected magnetic field parameters have order of two or lower, a number of orientations equals five, and each orientation has one of: a spherical θ coordinate equal to 45° in common, and a spherical ϕ coordinate equal to 180° in common with the remaining limitations of claims 17, 22 and 23 above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (571) 272-2252. The examiner can normally be reached on Monday to Thursday from 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Dixomara Vargas
Art Unit 2859
October 30, 2006



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